U.S. Department
of Transportation
Pipeline and
Hazardous Materials
Safety Administration

400 Seventh St., S.W.
Washington, D.C. 20590

**COMPETENT AUTHORITY CERTIFICATION
FOR A TYPE B(U)F FISSILE
RADIOACTIVE MATERIALS PACKAGE DESIGN
CERTIFICATE USA/9250/B(U)F-85, REVISION 7**

This certifies that the radioactive materials package design described below has been certified by the Competent Authority of the United States as meeting the regulatory requirements for a Type B(U)F packaging for fissile radioactive materials as prescribed in the regulations of the International Atomic Energy Agency[1] and United States of America[2].

1. Package Identification - 5X22.

2. Packaging Description and Authorized Radioactive Contents - as described in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9250, Revision 10 (attached).

3. Criticality -

   a. Minimum Criticality Safety Index shall be as defined in U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9250, Revision 10 (attached).

   b. The maximum number of packages shall be determined in accordance with Table X of the IAEA's "Regulations for the Safe Transport of Radioactive Materials, 1996 Edition (Revised), No. TS-R-1 (ST-1 Revised).

   c. The criticality analysis considered the presence of water in all void spaces.

4. General Conditions -

   a. Each user of this certificate must have in his possession a copy of this certificate and all documents necessary to properly prepare the package for transportation in accordance with the endorsed certificate.

   b. Each user of this certificate, other than the original petitioner, shall register his identity in writing to the Office of Hazardous Materials Technology (DHM-23), Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation, Washington, D.C. 20590-0001.

   c. This certificate does not relieve any consignor or carrier from compliance with any requirement of the Government of any country through or into which the package is to be transported.

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[1] "Regulations for the Safe Transport of Radioactive Materials, 1996 Edition (Revised), No. TS-R-1 (ST-1 Revised)," published by the International Atomic Energy Agency (IAEA), Vienna, Austria.

[2] Title 49, Code of Federal Regulations, Parts 100 - 199, United States of America.

d. Records of Quality Assurance activities required by Paragraph 209 of the IAEA regulations[1] shall be maintained and made available to authorized officials for at least three years after the last shipment authorized by this certificate. Consignors exporting shipments from the United States shall satisfy the requirements of Subpart H of 10 CFR 71.

5. Marking and Labeling - The package shall bear the marking USA/9250/B(U)F-85 in addition to other required markings and labeling.

6. Expiration Date - This certificate expires on March 31, 2008.

This certificate is issued in accordance with paragraphs 817 of the IAEA Regulations and Section 173.473 of Title 49 of the Code of Federal Regulations, in response to the petition and technical data submitted by BWXT, Lynchburg, VA, and in consideration of other information on file in this Office.

Certified by:

OCT - 6 2005

Robert A. McGuire (DATE)
Associate Administrator for Hazardous
Materials Safety

Revision 7 - issued to endorse U.S. Nuclear Regulatory Commission Certificate of Compliance No. 9250, Revision 10.

NRC FORM 618
(8-2000)
10 CFR 71

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF COMPLIANCE
FOR RADIOACTIVE MATERIAL PACKAGES

a. CERTIFICATE NUMBER	b. REVISION NUMBER	c. DOCKET NUMBER	d. PACKAGE IDENTIFICATION NUMBER	PAGE		PAGES
9250	10	71-9250	USA/9250/B(U)F-85	1	OF	4

2. PREAMBLE

a. This certificate is issued to certify that the package (packaging and contents) described in Item 5 below meets the applicable safety standards set forth in Title 10, Code of Federal Regulations, Part 71, "Packaging and Transportation of Radioactive Material."

b. This certificate does not relieve the consignor from compliance with any requirement of the regulations of the U.S. Department of Transportation or other applicable regulatory agencies, including the government of any country through or into which the package will be transported.

3. THIS CERTIFICATE IS ISSUED ON THE BASIS OF A SAFETY ANALYSIS REPORT OF THE PACKAGE DESIGN OR APPLICATION

a. ISSUED TO *(Name and Address)*

BWX Technologies
Nuclear Products Division
P.O. Box 785
Lynchburg, VA 24505

b. TITLE AND IDENTIFICATION OF REPORT OR APPLICATION

BWX Technologies, Nuclear Products Division application dated June 13, 2005.

4. CONDITIONS

This certificate is conditional upon fulfilling the requirements of 10 CFR Part 71, as applicable, and the conditions specified below.

5.

(a) Packaging

(1) Model No.: 5X22

(2) Description

A shipping container for unirradiated uranium of any enrichment. The outer packaging is a 16-gauge steel drum, approximately 22-1/2 inches in diameter and 34-3/4 inches high, with a heavy-duty clamp ring and forged lugs. The inner vessel (containment vessel) is a Schedule 40S stainless steel pipe with a welded bottom cap and a top weldneck flange. The inner vessel lid is a blind flange which is bolted to the weldneck flange with eight hex-head bolts. The closure includes double silicone O-ring seals and a leak-test port. The dimensions of the inner vessel are approximately 5 inches ID by 22 inches high. The inner vessel is centered within the outer drum by fiberboard and supported by plywood disks. The maximum weight of the package, including contents, is 300 pounds.

(3) Drawings

The packaging is constructed in accordance with BWX Technologies, Inc., Drawing Nos. 1220276 E, Rev. 4, and 1220277 E, Rev. 8.

5.(b) Contents

Type and form of material, maximum quantity of material per package, and Criticality Safety Index.

The weight of the contents, including secondary containers, inserts, and other materials in the inner vessel, shall not exceed 50 pounds.

(1) Unirradiated uranium as solid compounds or alloys which do not decompose at temperatures up to 250 °F, and uranium oxides as powder or pellets. The uranium may be of any enrichment. Carbide compounds are not authorized. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

(2) Unirradiated solid uranyl nitrate in the form of uranyl nitrate dihydrate crystals, which may have small amounts of uranyl trihydrate crystals interspersed. The uranyl nitrate crystals shall have a uranium content that is from 52.5 to 56.0 percent by weight. The uranyl nitrate shall be packaged in Teflon primary containers that will not melt at temperatures up to 94 °C. The uranium may be of any enrichment. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

5.(b) Contents (continued)

(3) Unirradiated uranium as solid metal. The uranium may be of any enrichment. The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.5
U-235	3	1.6	0.5
U-235	20	4.0	2.0
U-233	20	0.5	1.8

(4) Unirradiated uranium as solid metal. The uranium may be of any enrichment. The packaging must include a solid aluminum disk insert positioned in the inner vessel, as shown on BWX Technologies, Inc., Drawing No. 1220277 E, Rev. 8 (Part No. 6). The maximum H/U must consider all sources of moderation in the inner vessel.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	3	9.0	2.0

(5) Unirradiated liquid uranyl nitrate solution in sealed glass containers or screw top plastic vials, each within one or more additional plastic vials with taped lids, and within a sealed product can or polyethylene bottle containing a sufficient amount of vermiculite to absorb twice the liquid contents present. The uranium may be of any enrichment. The quantity of uranyl nitrate shall not exceed 1000 mL of solution.

Fissile Material	Maximum H/U	Maximum Fissile Mass per Package (kg)	Criticality Safety Index
U-235	N/A	0.4	0.4

6. The vent holes on the outer steel drum shall be capped or taped closed during transport and storage to preclude entry of rain water into the packaging.

7. In addition to the requirements of Subpart G of 10 CFR Part 71:

   (a) Each package shall be operated and prepared for shipment in accordance with Chapter 7 of the application, as supplemented.

   (b) Each package shall be acceptance tested and maintained in accordance with Chapter 8 of the application.

8. The package authorized by this certificate is hereby approved for use under the general license provisions of 10 CFR 71.17.

9. Expiration date: March 31, 2008.

REFERENCES

BWX Technologies, Inc., application dated June 13, 2005.

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

/RA/

Robert J. Lewis, Chief
Licensing Section
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Date: September 22, 2005